

Radio

# AMATEUR

Call Book Magazine

**\$1.50**

Foreign  
**\$2.00**



**FALL 1948**



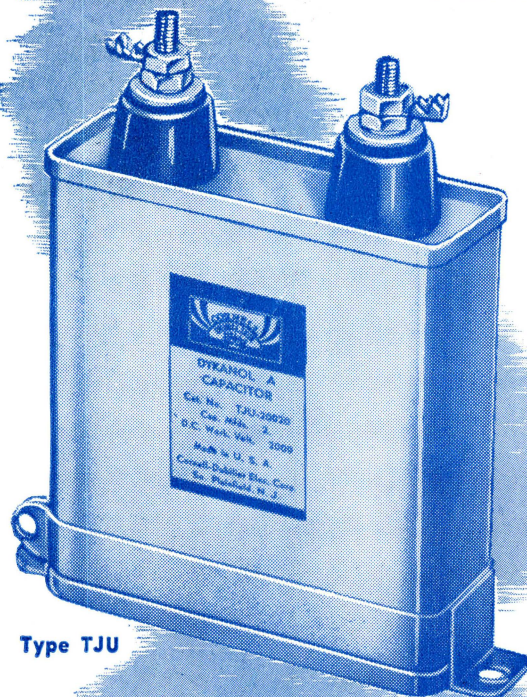
# IN THE OLD DAYS...

## the CQ buzzed his chum around the corner

Time was when a ham practically limited his calls to Charlie down the street, or signalled Frank over in the next town "just for distance." It was pretty exciting in those early days of make-shift rigs.

Today, hams can dial their CQ chums in the four corners of the globe — thanks to modern radio achievements. And thanks, too, to the pace-setting performance of C-D capacitors. Their precision, stability, and life-time dependability assure controlled DX power for rigs of any size. Stick to C-D capacitors and you'll be sure of the finest your money can buy.

### A FEW OF THE POPULAR C-D TRANSMITTING CAPACITORS



Type TJU

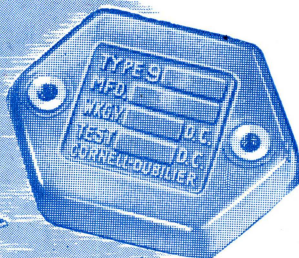
**Type TJU** — The Type T series, non-inflammable, hermetically sealed Dykanol capacitors feature small size, light weight, low dielectric stress and long life under the most severe operating conditions.

**Type TLA** — For compact high-voltage filter applications, type TLA Dykanol capacitors in cylindrical aluminum containers are ideal in every respect. They have a high safety factor and exceptionally long life at high temperatures.

**Type 9** — These mica capacitors are designed to meet the requirements of low-power transmitters. They are equally effective for grid and plate blocking and for r.f. by-pass. Freedom from frequency drift is assured by exceptional stability.



Type TLA



Type 9

1910



1948

**CORNELL-DUBILIER**  
WORLD'S LARGEST MANUFACTURER OF  
**CAPACITORS**



Over 50,000 radio men read "The Capacitor" each month. Write today for your FREE subscription. Send penny postcard to: Cornell-Dubilier Electric Corp., Dept. HF, South Plainfield, New Jersey.

MICA

DYKANOL

PAPER

ELECTROLYTIC

See yellow pages of your Classified Telephone Book for nearest C-D Authorized Distributor.



**BE SURE YOU'RE ON THE BAND**

**KNOW YOUR MODULATION PERCENTAGE**

**MEASURE YOUR FIELD STRENGTH**

**With the Simpson Model 380**

## **WAVEMETER and MODULATION INDICATOR . . .**

Although Model 380 is no larger than a man's hand, it has the fine Simpson meter movement and precision engineering that assure lasting accuracy. It is protectively housed in a cast aluminum case.

You can spot your transmitter at any desired point on the band, keep constant check on percentage modulation, monitor the quality of your transmission or plot antenna field patterns. Also, you will find the Model 380 handy for searching the region between bands for harmonics and parasitics, and indicating changes in actual radiated power output. All readings are clearly and instantly indicated on a direct-reading dial.

For even greater utility, the Wavemeter is equipped with a two-foot long antenna that can be plugged into the panel well on those occasions when field strength indications are desired. Separate coils for the 10, 20, 40 and 80 meter bands, and individual, hand calibrated curves, are also furnished.

You will find that Model 380's convenient size, accuracy of calibration, and wide range of utility make it the most useful ham instrument produced in recent years.

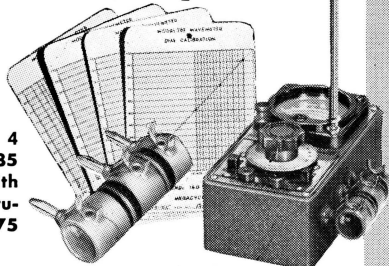
Size: 2" x 2 1/4" x 5 1/4"

Weight: 1 3/4 lbs.

Shipping weight: 2 1/2 lbs.

Dealer's net price, complete with 4 coils and 2 ft. antenna.....\$37.85

Leatherette-covered carrying case with separate compartments for the instrument and four coils.....\$6.75



### *Important* **WAVEMETER** features

1. An accurate wavemeter band-spread for each ham band with individual hand-drawn calibration curves and a sensitive 0-100 microammeter as a resonance indicator.
2. Separate plug-in coils for each of 10, 20, 40 and 80 meter bands supplied—coils for other bands available at slight extra cost.
3. Additional between-band coverage available at the flip of a switch.
4. Extremely sensitive field strength indicator calibrated in relative power output, for antenna adjustment and field pattern measurement.
5. Push button switch for dual meter sensitivity plus provision for a plug-in antenna covers all possible field strength conditions.
6. Provision for head phones for use in station monitoring and quality control.
7. Finally, a direct reading Percentage Modulation Indicator, with the instrument calibrated 0-110% Modulation.
8. Designed to function on the 144, 235 and 420 megacycle bands without coils, but with a quarter wave antenna section. Reads field strength and percent modulation and spots the band at these frequencies.
9. Compact in size and completely shielded in an attractively finished cast aluminum case.
10. Extremely rugged in construction, with all parts securely held in place to assure permanent accuracy.
11. To be used as a field strength indicator to determine radiation pattern.

Ask your jobber, or write  
for descriptive literature.

SIMPSON ELECTRIC COMPANY  
5200-18 West Kinzie Street, Chicago 44, Ill.

**Simpson**

INSTRUMENTS THAT STAY ACCURATE



# RADIO AMATEUR CALL BOOK

## MAGAZINE

If you hold two separate radio amateur station licenses, be sure and advise us giving the call letters, addresses and the date that each license was issued. This information may prevent one of your calls from being deleted from the Callbook through error.

You may receive a questionnaire from us asking for all of your ex-calls and your full name, including your middle name. This information is desired for identification purposes only so that your call will not be confused with another radio amateur having the same last name.

If your first name does not appear opposite your call letters, it is due to the fact that we do not have it in our records. If you desire your "handle" included in your QRA be sure and write us.

W9TRD

VOLUME 26 NUMBER 3

Copyright 1948 by

**RADIO AMATEUR CALL BOOK**  
(Incorporated)

608 South Dearborn Street  
CHICAGO 5, ILLINOIS, U. S. A.  
PHONE WABASH 1903



### Representatives

CLEVELAND, OHIO

JAMES C. MUNN

2253 DELAWARE DRIVE, CLEVELAND 6  
PHONE ERIEVIEW 1726

LOS ANGELES, CALIFORNIA

DON C. & WILLIAM H. WALLACE  
1206 MAPLE AVENUE, LOS ANGELES 15  
PHONE RICHMOND 7-0401

NEW YORK, N. Y.

HERBERT J. OLSOW

480 LEXINGTON AVENUE, NEW YORK 17  
PHONE PLAZA 9-0861

Editor

MRS. CHARLES O. STIMPSON

Circulation Manager

M. WILLIAMS

Founder and Publisher

CHARLES O. STIMPSON

W9TRD

RADIO AMATEUR CALL BOOK is published quarterly. Annual subscription, \$5.00 in the United States and Possessions. Canada and foreign countries, \$7.00. Single copies in U. S. and Possessions \$1.50, elsewhere \$2.00. Entered as second class matter February 9, 1946, at the Post Office at Chicago, Illinois, under the Act of March 3, 1879.

## C O N T E N T S

RADIO AMATEUR PREFIXES, arranged alphabetically by prefix.....	8
RADIO AMATEUR PREFIXES, arranged alphabetically by country.....	10
GREAT CIRCLE MAP centered on Washington, D. C.....	12
GREAT CIRCLE MAP centered on San Francisco, California.....	14
GREAT CIRCLE BEARINGS in the United States.....	16
GREAT CIRCLE BEARINGS from the United States to various world wide metropolitan areas.....	18
GREAT CIRCLE OUTLINE CHART of the United States.....	20
AIR LINE DISTANCE TABLE between cities in the United States.....	22
WORLD MAP showing radio amateur prefixes.....	22
 FIRST CALL AREA.....	 25
Includes the States of Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island and Vermont.	
 SECOND CALL AREA.....	 43
Includes the States of New Jersey and New York.	
 THIRD CALL AREA.....	 75
Includes the States of Delaware, Maryland, Pennsylvania, and the District of Columbia.	
 FOURTH CALL AREA.....	 92
Includes the States of Alabama, Florida, Georgia, Kentucky, North and South Carolina, Tennessee, Virginia and the territories of Puerto Rico and the Virgin Islands.	
 FIFTH CALL AREA.....	 110
Includes the States of Arkansas, Louisiana, Mississippi, New Mexico, Oklahoma and Texas.	
 SIXTH CALL AREA.....	 126
Includes the State of California, the Territory of Hawaii and those Pacific Possessions not assigned to the seventh call area.	
 SEVENTH CALL AREA.....	 153
Includes the States of Arizona, Idaho, Montana, Nevada, Oregon, Utah, Washington, Wyoming, the territory of Alaska and adjacent islands.	
 EIGHTH CALL AREA.....	 166
Includes the States of Michigan, Ohio, and West Virginia.	
 NINTH CALL AREA.....	 184
Includes the States of Illinois, Indiana and Wisconsin.	
 TENTH CALL AREA.....	 205
Includes the States of Colorado, Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota and South Dakota.	
 FOREIGN RADIO AMATEUR STATIONS, arranged alphabetically by country.....	 224
POSTAL INFORMATION, showing air mail rates to foreign countries.....	308
Federal Communications Commission Examination Points.....	309
ARRL PHONETIC ALPHABET.....	311
INTERNATIONAL "Q" SIGNALS.....	312
RST SYSTEM for reporting signals.....	318
INDEX TO ADVERTISERS.....	322





## **SYLVANIA'S**

Comprehensive line of Transmitting  
tubes for the radio amateur

TRIODES  
BEAM POWER TUBES  
RECTIFIERS

(Mercury Vapor and Vacuum)

You can get famous Sylvania quality in an inclusive line of transmitting tubes! The Sylvania line comprises a total of 20 different types that will meet most of the requirements of the radio amateur. All of them meet the same exacting standards that have made Sylvania receiving tubes the first choice of many a Ham operator.

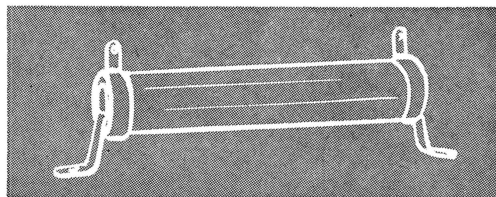
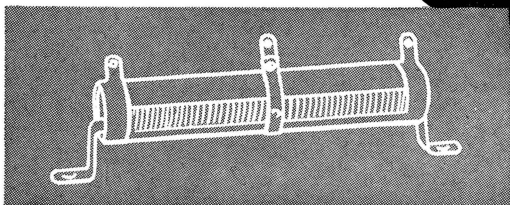
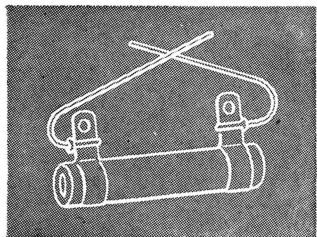
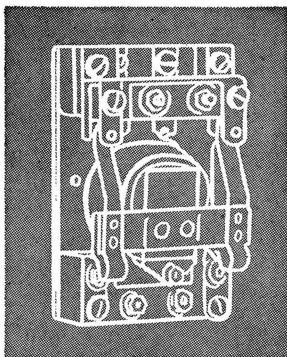
Ask your Sylvania Distributor about these transmitting tubes.

# **SYLVANIA ELECTRIC**

Radio Tube Division, Emporium, Pa.

RADIO TUBES; CATHODE RAY TUBES; ELECTRONIC DEVICES; FLUORESCENT  
LAMPS, FIXTURES, WIRING DEVICES; ELECTRIC LIGHT BULBS; PHOTOLAMPS





# Hams

## THE WORLD OVER

### RELY ON



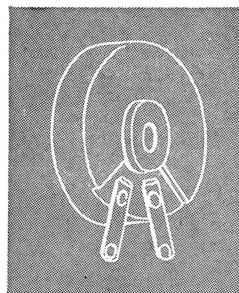
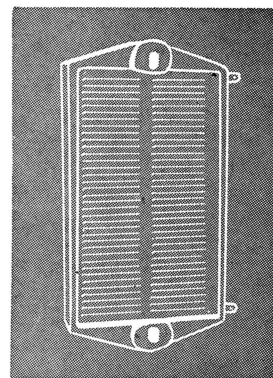
### RELAYS • RESISTORS

There's less to worry about . . . and lots more pleasure . . . when you go on the air with WARD LEONARD control units in your rig. You're sure of the same rugged dependability that has made WARD LEONARD Relays and Resistors standard equipment in industrial installations throughout the world. You get the same extra assurance against failures and breakdowns. That's why they're favorites of so many Hams. You can get exactly what you need from the wide range of types and sizes . . . at your WARD LEONARD Distributor.

*Radio and Electronic Distributor Division*

**Ward Leonard Electric Company**

53-D West Jackson Blvd., Chicago 4, Illinois



*Basic 3 R's in Current Control*

## WARD LEONARD

RELAYS • RESISTORS • RHEOSTATS

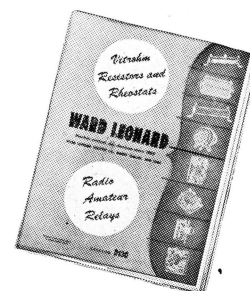
RESULT-ENGINEERED



CONTROL DEVICES

**SEND FOR CATALOG D-130**

Gives helpful information and data on relays, resistors and rheostats. Lists the many stock types.





# B & W



Write for the  
B & W Inductor  
Coil and Capacitor  
Catalog.

WRITE for B & W BULLETINS  
covering new test equipment

B & W "Air Wound" Inductors weigh less, are more durable, easier to mount. Types and sizes for every amateur radio need. Leading jobbers have them.

## INDUCTOR COIL *Headquarters*

BARKER & WILLIAMSON, INC. • 237 FAIRFIELD AVENUE • UPPER DARBY, PA.

EXPORT: ROYAL NATIONAL COMPANY, 75 WEST STREET, NEW YORK, N. Y.





# HENRY

## HAS

Henry Radio stores in Butler, Missouri and 11240 West Olympic Blvd., Los Angeles, California have complete stocks of all Collins amateur equipment for immediate delivery. Also complete stocks of all other amateur receivers, transmitters, and parts. I promise you that you can find nowhere else lower prices, more complete stocks, quicker delivery, easier terms or more generous trade-ins. I give you 10-day free trial and 90-day free service. I promise that you will be satisfied on every detail. Write, wire, phone or visit either store today.

*Bob Henry*  
W4ARA

### A FEW OF THE ITEMS WE STOCK ARE LISTED BELOW

Hallicrafters S38	\$ 47.50
Hallicrafters S53	79.50
Hallicrafters SX43	169.50
Hallicrafters SX42	275.00
Hallicrafters S47	200.00
Hallicrafters S55	119.50
Hallicrafters S56	99.50
Hallicrafters T-54	169.50
Hallicrafters S40A	89.50
Hallicrafters S51	129.50
Hallicrafters SP44	49.50
Hallicrafters HT18	110.00
Hallicrafters HT9	350.00
Hammarlund HQ129X	189.15
Hammarlund SP400X Super Pro	450.00
National NC-33	65.95
National NC-57	89.50
National NC-173	179.50
National NC-183	269.00
National HRO-7	279.00
National NC240D	225.00
National HFS	125.00
RME HF-10-20	77.00
RME VHF-152A	86.60
RME DB22A	71.00
RME-84	98.70
RME-45	198.70
Meck T60	150.00
Signal Shifter model EX	99.50
Millen 90800	42.50
Millen 90881	89.50
Millen 90281	84.50

McMurdo Silver, Gonset, Bud, Sonar, Gordon, Amphenol-Mims; we have everything for the radio amateur.

Some prices slightly higher on the west coast.



### FOR EXAMPLE:

Collins 75A-1 receiver	\$ 375.00
Collins 32V-1	475.00
Collins 30K-1	1450.00
Collins 70E-8	40.00
Collins 310C-1	85.00
Collins 310C-2	100.00
Collins 210B-1	190.00
Collins 310B-3	215.00

### COMPLETE STOCKS

Henry has *everything* in the ham field.

### QUICK DELIVERY

Shipments 4 hours after receipt of order. Send \$5.00 with order and shipment will be made at once C.O.D.

### TRADE-INS

You can't beat Bob Henry for trade-ins. Write, wire or phone today about your equipment and Bob Henry will make you a better offer than you can get anywhere else.

### TIME PAYMENT

Because Bob Henry finances the terms himself you get a better break. Save time and money, deal with Bob Henry on his personal, profitable time payment plan.

Butler, Missouri

# HENRY RADIO STORES

11240 Olympic Blvd.  
LOS ANGELES 25  
CALIF.

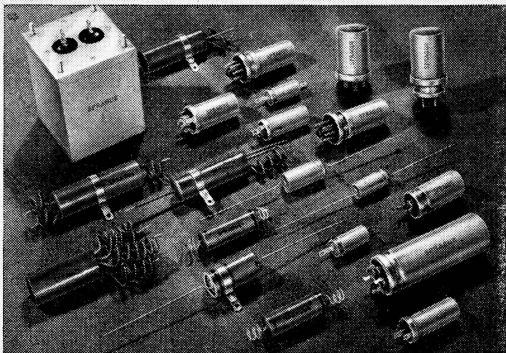
"WORLD'S LARGEST DISTRIBUTORS OF SHORT WAVE RECEIVERS"



# Here's Capacitor Dependability!

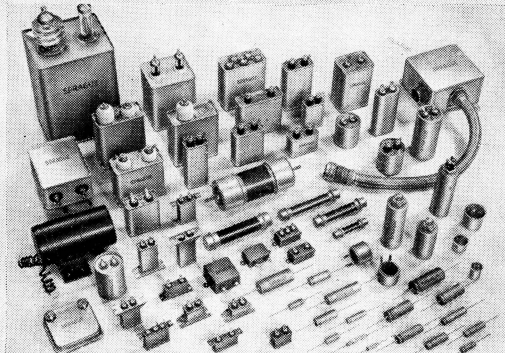
Shown here are a few of more than 9675 capacitor and \*Koolohm resistor types that Sprague produces every year. Many of these are for critical industrial applications, others for national defense and ultra-exacting scientific needs.

From this vast array come the capacitors that are carefully selected for amateur radio uses—types that mean more for your money because they're better engineered, built more dependably. Catalog on request.



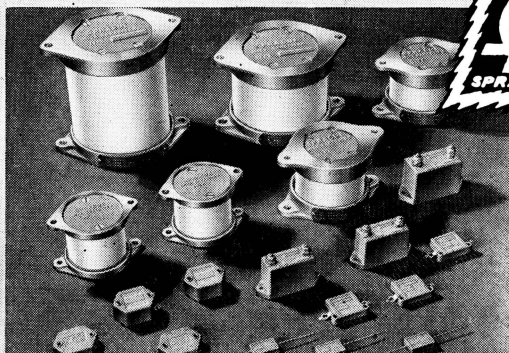
## DRY ELECTROLYTICS

Sprague offers the most diversified dry electrolytic capacitor line ever presented for standard distributor stock. Tiny "Atom" midgets; self-mounting multi-section units; high-capacity, low-voltage tubulars; rectangular and cylindrical shapes; lug, bracket and self-mounting types; terminals and lead connections and many others!



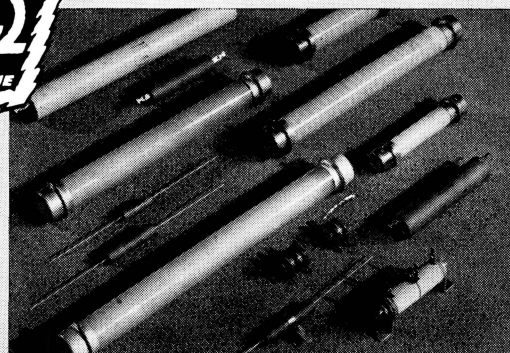
## PAPER DIELECTRICS

Standard Sprague paper dielectric capacitors for amateur use include 15 types and over 250 items. Chief among them are three small, popularly priced transmitting types that are both filled and impregnated with \*KVO, the exclusive Sprague dielectric. And don't forget the TC Tubular By-pass types— "Not a failure in a million!"



## MICA DIELECTRICS

Sprague distributors carry complete stocks of popular mica capacitors including all needed capacities and voltage ratings—in sizes from "postage stamp" silvered micas to high-voltage ceramic-jacketed units. All provide maximum quality for R-F applications where low power factor and high insulation resistance at high frequencies are essential.



## \*KOOLOHM RESISTORS

Sprague Koolohm Resistors are wound with wire insulated before winding with a flexible ceramic coating that is impervious to heat as high as 1000° C. Doubly protected by glazed ceramic shells and moisture resistant seals. Insulated for 10,000 volts resistance breakdown to ground. Larger, sturdier wire sizes in smaller resistors. Use Koolohms at full wattage ratings—anywhere!

\*Trademarks Reg. U. S. Pat. Off.

# SPRAGUE

PIONEERS OF ELECTRONIC AND ELECTRICAL PROGRESS  
SPRAGUE PRODUCTS COMPANY, NORTH ADAMS, MASS.

Jobbing distributing organization for products of Sprague Electric Co.



# INTERNATIONAL RADIO AMATEUR PREFIXES

The following prefixes are listed in alphabetical order for convenience in locating the country when DX calls are heard. Figures in parentheses ( ) show the amount of postage required when mailing from the United States and possessions. The first figure is for letters, (first ounce or fraction), and the second figure for post cards or QSL cards.

AC3.....(5, 3).....SIKKIM	KH6.....(3, 1).....HAWAIIAN ISLANDS	VP1.....(5, 3).....BRITISH HONDURAS
AC4.....(5, 3).....TIBET	KJ6.....(3, 1).....JOHNSTON ISLAND	VP2.....(5, 3).....LEEWARD & WINDWARD ISLANDS
AR.....(5, 3).....SYRIA	KL7.....(3, 1).....ALASKA	VP3.....(5, 3).....BRITISH GUIANA
AR8.....(5, 3).....LEBANON REPUBLIC	KM6.....(3, 1).....MIDWAY ISLAND	VP4.....(5, 3).....TRINIDAD & TOBAGO IS.
C.....(5, 3).....CHINA	KP4.....(3, 1).....PUERTO RICO	VP5.....(5, 3).....JAMAICA, CAYMAN, TURKS & CAICOS IS.
CE.....(3, 2).....CHILE	KP6.....(3, 1).....PALMYRA & JARVIS ISLANDS	VP6.....(5, 3).....BARBADOS
CM-CO.....(3, 2).....CUBA	KS4.....(3, 1).....SWAN ISLAND	VP7.....(5, 3).....BAHAMA ISLANDS
CN8.....(5, 3).....FRENCH MOROCCO	KS6.....(3, 1).....U. S. SAMOA	VP8.....(5, 3).....FALKLAND ISLANDS, South Georgia, South Orkney and South Shetland Islands.
CP.....(3, 2).....BOLIVIA	KV4.....(3, 1).....VIRGIN ISLANDS	VP9.....(5, 3).....BERMUDA ISLANDS
CR4.....(5, 3).....CAPE VERDE ISLANDS	KW6.....(3, 1).....WAKE ISLAND	VQ1.....(5, 3).....ZANZIBAR
CR5.....(5, 3).....PORTUGUESE GUINEA	KZ5.....(3, 1).....CANAL ZONE	VQ2.....(5, 3).....NORTHERN RHODESIA
CR6.....(5, 3).....ANGOLA	LA.....(5, 3).....NORWAY	VQ3.....(5, 3).....TANGANYIKA TERRITORY
CR7.....(5, 3).....MOZAMBIQUE	LI.....(5, 3).....LIBYA	VQ4.....(5, 3).....KENYA
CR8.....(5, 3).....GOA (Portuguese India)	LU.....(3, 2).....ARGENTINA	VQ5.....(5, 3).....UGANDA
CR9.....(5, 3).....MACAU	LX.....(5, 3).....LUXEMBOURG	VQ6.....(5, 3).....BRITISH SOMALILAND
CR10.....(5, 3).....TIMOR ISLAND (Port.)	LZ.....(5, 3).....BULGARIA	VQ8.....(5, 3).....CHAGOS & MAURITIUS ISLANDS
CT1.....(5, 3).....PORTUGAL	MB9.....(5, 3).....AUSTRIA	VQ9.....(5, 3).....SEYCHELLES
CT2.....(5, 3).....AZORES ISLANDS	MD1.....(5, 3).....CIRENAICA	VR1.....(5, 3).....GILBERT, ELLICE & OCEAN ISLANDS
CT3.....(5, 3).....MADERIA ISLANDS	MD2.....(5, 3).....TRIPOLITANIA	VR2.....(5, 3).....FIJI ISLANDS
CX.....(3, 2).....URUGUAY	MD3.....(5, 3).....ERITREA	VR3.....(5, 3).....FANNING ISLAND
D.....(5, 3).....GERMANY	MD4.....(5, 3).....SOMALIA	VR4.....(5, 3).....SOLOMON ISLANDS
EA.....(3, 2).....SPAIN	MD5.....(5, 3).....SUEZ CANAL ZONE	VR5.....(5, 3).....TONGA (Friendly) ISLAND
EA6.....(3, 2).....BALEARIC ISLANDS	MD6.....(5, 3).....IRAQ	VR6.....(5, 3).....PITCAIRN ISLAND
EA8.....(3, 2).....CANARY ISLANDS	NY4.....(3, 1).....GUANTANAMO BAY, CUBA	VS1.....(5, 3).....SINGAPORE
EA9.....(3, 2).....SPANISH MOROCCO	OA.....(3, 2).....PERU	VS2.....(5, 3).....MALAYAN UNION
EI.....(5, 3).....IRELAND	OH.....(5, 3).....FINLAND	VS4.....(5, 3).....BRITISH NORTH BORNEO
EK1.....(5, 3).....TANGIER ZONE	OE.....(5, 3).....AUSTRIA	VS5.....(5, 3).....BRUNEI & SARAWAK
EL.....(5, 3).....LIBERIA	OK.....(5, 3).....CZECHOSLOVAKIA	VS6.....(5, 3).....HONG KONG
EP, EQ.....(5, 3).....IRAN (ex Persia)	ON.....(5, 3).....BELGIUM	VS7.....(5, 3).....CEYLON
ET.....(5, 3).....ETHIOPIA	OQ5.....(5, 3).....BELGIAN CONGO	VS9.....(5, 3).....ADEN & SOCOTRA ISLANDS
F.....(5, 3).....FRANCE	OX.....(5, 3).....GREENLAND	VU.....(5, 3).....INDIA
FA.....(5, 3).....ALGERIA	OY.....(5, 3).....FAEROES ISLANDS	VU4.....(5, 3).....LACCADIVE ISLANDS
FB8.....(5, 3).....MADAGASCAR	OZ.....(5, 3).....DENMARK	VU5.....(5, 3).....ANDAMAN ISLANDS
FD8.....(5, 3).....FRENCH TOGOLAND	PA, PI.....(5, 3).....NETHERLANDS	VU7.....(5, 3).....BAHRAIN ISLANDS
FE8.....(5, 3).....FRENCH CAMEROONS	PJ.....(5, 3).....NETH. WEST INDIES	W.....(3, 1).....UNITED STATES
FF8.....(5, 3).....FRENCH WEST AFRICA	PK1, 2, 3.....(5, 3).....JAVA	XE.....(3, 2).....MEXICO
FG8.....(5, 3).....GUADELOUPE	PK4.....(5, 3).....SUMATRA	XZ.....(5, 3).....BURMA
FI8.....(5, 3).....FRENCH INDO-CHINA	PK5.....(5, 3).....BORNEO (Neth. Indies)	YA.....(5, 3).....AFGHANISTAN
FK8.....(5, 3).....NEW CALEDONIA	PK6.....(5, 3).....CELEBES & MOLUCCA IS. &	YI.....(5, 3).....IRAQ
FL8.....(5, 3).....FRENCH SOMALILAND	PK7.....(5, 3).....NETHERLAND NEW GUINEA	YJ.....(5, 3).....NEW HEBRIDES
FM8.....(5, 3).....MARTINIQUE	PX.....(5, 3).....ANDORRA	YN.....(3, 2).....NICARAGUA
FN.....(5, 3).....FRENCH INDIA	PY.....(3, 2).....BRAZIL	YR.....(5, 3).....ROUMANIA
FO8.....(5, 3).....TAHITI	PZ.....(5, 3).....SURINAM	YS.....(3, 2).....SALVADOR
FP8.....(5, 3).....MIQUELON & ST. PIERRE IS.	SM.....(5, 3).....SWEDEN	YT, YU.....(5, 3).....YUGOSLAVIA
FQ8.....(5, 3).....FRENCH EQUATORIAL AFRICA	SP.....(5, 3).....POLAND	YV.....(3, 2).....VENEZUELA
FR8.....(5, 3).....REUNION ISLAND	ST.....(5, 3).....SUDAN	ZA.....(5, 3).....ALBANIA
FT4.....(5, 3).....TUNISIA	SU.....(5, 3).....EGYPT	ZB1.....(5, 3).....MALTA
FU8.....(5, 3).....NEW HEBRIDES	SV.....(5, 3).....CRETE & GREECE	ZB2.....(5, 3).....GIBRALTAR
FY8.....(5, 3).....FRENCH GUIANA	SV5.....(5, 3).....DODECANESE ISLANDS	ZC1.....(5, 3).....TRANSJORDAN
G.....(5, 3).....ENGLAND	TA.....(5, 3).....TURKEY	ZC2.....(5, 3).....COCOS ISLANDS
GC.....(5, 3).....CHANNEL ISLANDS	TF.....(5, 3).....ICELAND	ZC3.....(5, 3).....CHRISTMAS ISLAND
GD.....(5, 3).....ISLE OF MAN	TG.....(3, 2).....GUATEMALA	ZC4.....(5, 3).....CYPRUS
GI.....(5, 3).....NORTHERN IRELAND	TI.....(3, 2).....COSTA RICA	ZC6.....(5, 3).....PALESTINE
GM.....(5, 3).....SCOTLAND	UA1-3-4-6.....(5, 3).....EUROPEAN RUSSIAN SOCIALIST FEDERATED SOVIET REPUBLIC	ZD1.....(5, 3).....SIERRA LEONE
GW.....(5, 3).....WALES	UA9-φ.....(5, 3).....ASIATIC RUSSIAN S. F. S. R.	ZD2.....(5, 3).....NIGERIA
HA.....(5, 3).....HUNGARY	UB5.....(5, 3).....UKRAINE	ZD3.....(5, 3).....GAMBIA
HB.....(5, 3).....SWITZERLAND	UC5.....(5, 3).....WHITE RUSSIAN S.S.R.	ZD4.....(5, 3).....GOLD COAST & TOGOLAND
HC.....(3, 2).....ECUADOR	UD6.....(5, 3).....AZERBAIJAN	ZD6.....(5, 3).....NYASALAND
HE1.....(5, 3).....LIECHTENSTEIN	UF6.....(5, 3).....GEORGIA	ZD7.....(5, 3).....SAINT HELENA
HH.....(3, 2).....HAITI	UG6.....(5, 3).....ARMENIA	ZD8.....(5, 3).....ASCENSION ISLAND
HI.....(3, 2).....DOMINICAN REPUBLIC	UH8.....(5, 3).....TURKOMAN	ZD9.....(5, 3).....TRISTAN DA CUNHA
HK.....(3, 2).....COLOMBIAN REPUBLIC	UI8.....(5, 3).....UZBEK	ZE.....(5, 2).....SOUTHERN RHODESIA
HL1.....(5, 3).....KOREA	UJ8.....(5, 3).....TADZHIK	ZK1.....(5, 3).....COOK ISLANDS
HP.....(3, 2).....PANAMA	UL7.....(5, 3).....KAZAKH	ZK2.....(5, 3).....NIUE
HR.....(3, 2).....HONDURAS	UM8.....(5, 3).....KIRGHIZ	ZL.....(5, 3).....NEW ZEALAND
HS.....(5, 3).....SIAM	UN1.....(5, 3).....KARELO-FINNISH REPUBLIC	ZM.....(5, 3).....WESTERN SAMOA
HZ.....(5, 3).....SAUDI ARABIA	UO5.....(5, 3).....MOLDAVIA	ZP.....(3, 2).....PARAGUAY
I.....(5, 3).....ITALY	UP.....(5, 3).....LITHUANIA	ZS.....(5, 3).....UNION OF SOUTH AFRICA
I6.....(5, 3).....ERITREA	UQ.....(5, 3).....LATVIA	
J.....(5, 3).....JAPAN	UR.....(5, 3).....ESTONIA	
J9.....(3, 1).....OKINAWA	VE.....(3, 2).....CANADA	
K.....(3, 1).....UNITED STATES	VK.....(5, 3).....AUSTRALIA	
KA.....(3, 2).....PHILIPPINE ISLANDS	VK7.....(5, 3).....TASMANIA	
KB6.....(5, 3).....BAKER, CANTON, ENDERBURY, HOWLAND & PHOENIX ISLANDS	VK9.....(5, 3).....PAPUA TERRITORY	
KC4.....(5, 3).....ANTARCTICA	VO.....(3, 2).....NEWFOUNDLAND & LABRADOR	
KG6.....(3, 1).....MARIANA ISLANDS (Guam)		



**WHEN IN CHICAGO  
VISIT OUR FAMOUS  
RADIO PARTS CENTER**

*Serve  
Yourself  
and Save!*

## Wells Guaranteed Quality Radio Parts Improve Performance and Save Money

Visit our tremendous new radio display and have the thrill of selecting beautiful quality parts and equipment at a fraction of the price of ordinary stuff. There are literally thousands of items to choose from—each marked as to type, size, rating and price.

For the benefit of our out-of-town Amateur friends, we maintain a world-wide mail order service. Write for special catalog listings on transmitting tubes, tube sockets, coaxial cable and connectors, transmitting capacitors, wire, wire wound resistors, relays, mica and silver mica condensers.

**WELLS**  
**SALES, INC.**

Be sure to ask for our new Amateur Radio Catalog H400C

320 N. LA SALLE ST. DEPT. B-10, CHICAGO 10, ILL.



# PREFIXES—BY COUNTRIES

The following countries listed in alphabetical order by country show international radio amateur prefixes. Characters in ( ) designate the continent and zone in which the country is located. Abbreviations are as follows: A—Asia, AF—Africa, E—Europe, NA—North America, O—Oceania, SA—South America.

ADEN	(A-21)	VS9
AFGHANISTAN	(A-21)	YA
ALASKA	(NA-1)	KL7
ALBANIA	(E-15)	ZA
ALGERIA	(AF-33)	FA
ANDORRA	(E-14)	PX
ANGLO-EGYPTIAN SUDAN	(AF-34)	ST
ANGOLA	(AF-36)	CR6
ARGENTINA	(SA-13)	LU
ASCENSION ISLAND	(AF-36)	ZD8
AUSTRALIA	(O-29 & 30)	VK
AUSTRIA	(E-15)	OE
AZORES ISLANDS	(E-14)	CT2

BAHAMA ISLANDS	(NA-8)	VP7
BAHRAIN ISLAND	(A-21)	VU7
BAKER ISLAND	(O-31)	KB6
BALEARIC ISLANDS	(E-14)	EA6
BARBADOS	(NA-8)	VP6
BASUTOLAND	(AF-38)	ZS4
BELGIAN CONGO	(AF-36)	OQ
BELGIUM	(E-14)	ON
BERMUDA ISLANDS	(NA-5)	VP9
BOLIVIA	(SA-10)	CP
BORNEO (Br. North)	(O-28)	VS4
BORNEO (Neth. Indies)	(O-28)	PK5
BRAZIL	(SA-11)	PY
BRITISH HONDURAS	(NA-7)	VP1
BRUNEI	(O-28)	VS5
BULGARIA	(E-20)	LZ
BURMA	(A-26)	XZ

CAMEROONS, British	(AF-36)	ZD2
CAMEROONS, French	(AF-36)	FE8
CANADA	(NA-1 to 5)	VE
CANAL ZONE	(NA-7)	KZ5
CANARY ISLANDS	(AF-33)	EA8
CANTON ISLAND	(O-31)	KB6
CAPE VERDE ISLANDS	(AF-35)	CR4
CAYMAN ISLANDS	(NA-8)	VP5
CELEBES	(O-28)	PK6
CEYLON	(A-22)	VS7
CHAGOS ISLANDS	(AF-39)	VQ8
CHANNEL ISLANDS	(E-14)	GC
CHILE	(SA-12)	CE
CHINA	(A-23 & 24)	C
CHRISTMAS ISLAND	(O-31)	ZC3
COCOS ISLAND	(NA-7)	TI
COCOS ISLANDS	(O-29)	ZC2
COLOMBIA	(SA-9)	HK
COOK ISLANDS	(O-32)	ZK1
COSTA RICA	(NA-7)	TI
CRETE	(E-20)	SV
CUBA	(NA-8)	CM, CO
CYPRUS	(A-20)	ZC4
CZECHOSLOVAKIA	(E-15)	OK

DENMARK	(E-14)	OZ
DODECANESE ISLANDS	(E-20)	SV5
DOMINICAN REPUBLIC	(NA-8)	HI

ECUADOR	(SA-10)	HC
EGYPT	(AF-34)	SU
ELLICE ISLANDS	(O-31)	VR1
ENGLAND	(E-14)	G
ERITREA	(AF-37)	16
ETHIOPIA	(AF-37)	ET

FAEROES, The	(E-14)	OY
FALKLAND ISLANDS	(SA-13)	VP8
FANNING ISLAND	(O-31)	VR3
FIJI ISLANDS	(O-32)	VR2
FINLAND	(E-15)	OH
FRANCE	(E-14)	F
FR. EQUATORIAL AFRICA	(AF-36)	FQ8
FRENCH INDIA	(A-22)	FN
FRENCH INDO-CHINA	(A-26)	F18
FRENCH OCEANIA	(O-32)	FO8
FRENCH WEST AFRICA	(AF-35)	FF8

GAMBIA	(AF-35)	ZD3
GERMANY	(E-14)	D
GIBRALTAR	(E-14)	ZB2
GILBERT ISLANDS	(O-31)	VR1
GOA (Portuguese India)	(A-22)	CR8
GOLD COAST	(AF-35)	ZD4

GREECE	(E-20)	SV
GREENLAND	(NA-40)	OX
GUADELOUPE	(NA-8)	FG8
GUAM	(O-27)	KG6
GUANTANAMO BAY	(NA-8)	NY4
GUATEMALA	(NA-7)	TG
GUIANA, BRITISH	(SA-9)	VP3
GUIANA, FRENCH	(SA-9)	FY8
GUIANA, NETHERLANDS	(SA-9)	PZ
GUINEA, PORTUGUESE	(AF-35)	CR5

HAITI	(NA-8)	HH
HAWAIIAN ISLANDS	(O-31)	KH6
HONDURAS	(NA-7)	HR
HONG KONG	(A-24)	VS6
HOWLAND ISLAND	(O-31)	KB6
HUNGARY	(E-15)	HA

ICELAND	(E-40)	TF
INDIA	(A-21 & 22)	VU
IRAN	(A-21)	EP, EQ
IRAQ	(A-21)	YI
IRELAND	(E-14)	EI
ISLE OF MAN	(E-14)	GD
ITALY	(E-15)	I

JAMAICA	(NA-8)	VP5
JAN MAYEN ISLAND	(E-40)	OY
JAPAN	(A-25)	J
JARVIS ISLAND	(O-31)	KP6
JAVA	(O-28)	PK1, 2, 3
JOHNSTON ISLAND	(O-31)	KJ6

KENYA	(AF-37)	VQ4
KOREA	(A-25)	HL1

LABRADOR	(NA-2)	VO
LACCADIVE ISLANDS	(A-22)	VU4
LEBANON REPUBLIC	(A-20)	AR8
LEEWARD ISLANDS	(NA-8)	VP2
LIBERIA	(AF-35)	EL
LIECHTENSTEIN	(E-14)	HE1
LITTLE AMERICA	(SA-13)	KC4
LUXEMBOURG	(E-14)	LX

MACAU	(A-24)	CR9
MADAGASCAR	(AF-39)	FB8
MADEIRA ISLANDS	(AF-33)	CT3
MALAYA	(A-28)	VS1, 2
MALDIVES ISLANDS	(A-22)	VS9
MALTA	(E-15)	ZB1
MARIANAS ISLANDS	(O-27)	KG6
MARTINIQUE	(NA-8)	FM8
MAURITIUS	(AF-39)	VQ8
MEXICO	(NA-6)	XE
MIDWAY ISLAND	(O-31)	KM6
MIQUELON ISLAND	(NA-5)	FP8
MOROCCO, French	(AF-33)	CN
MOROCCO, Spanish	(AF-33)	EA9
MOZAMBIQUE	(AF-37)	CR7

NETHERLANDS	(E-14)	PA
NETHERLAND W. INDIES	(SA-9)	PJ
NEW CALEDONIA	(O-32)	FK8
NEWFOUNDLAND	(NA-5)	VO
NEW GUINEA, Netherlands	(O-28)	PK6
NEW GUINEA, Territory of	(O-28)	VK9
NEW HEBRIDES	(O-32)	FU8, YJ
NEW ZEALAND	(O-32)	ZL
NICARAGUA	(NA-7)	YN
NIGERIA	(AF-35)	ZD2
NIUE	(O-32)	ZK2
NORTHERN IRELAND	(E-14)	GI
NORWAY	(E-14)	LA
NYASALAND	(AF-37)	ZD6

PALESTINE	(A-20)	ZC6
PANAMA	(NA-7)	HP
PAPUA TERRITORY	(O-28)	VK9
PARAGUAY	(SA-11)	ZP
PERU	(SA-10)	OA
PHILIPPINE ISLANDS	(O-32)	KA
PITCAIRN ISLAND	(O-27)	VR6
POLAND	(E-15)	SP

PORTUGAL	(E-14)	CT1
PUERTO RICO	(NA-8)	KP4

REUNION ISLAND	(AF-39)	FR8
RHODESIA, NORTHERN	(AF-36)	VQ2
RHODESIA, SOUTHERN	(AF-38)	ZE
ROUMANIA	(E-20)	YR
RYUKYU ISLANDS	(A-25)	J9

SAINT HELENA	(AF-36)	ZD7
SALVADOR	(NA-7)	YS
SAMOA (U.S.)	(O-32)	KS6
SAMOA (Western)	(O-32)	ZM
SARAWAK	(O-28)	VS5
SAUDI ARABIA	(A-21)	HZ
SCOTLAND	(E-14)	GM
SEYCHELLES	(AF-39)	VQ9
SIAM	(A-26)	HS
SIERRA LEONE	(AF-35)	ZD1
SIKKIM	(A-22)	AC3
SOCOTRA ISLAND	(AF-37)	VS9
SOLOMON ISLANDS	(O-28)	VR4
SOMALILAND, British	(AF-37)	VQ6
SOMALILAND, French	(AF-37)	FL8
SOUTH GEORGIA	(SA-13)	VP8
SOUTH ORKNEY ISLANDS	(SA-13)	VP8
SOUTH SANDWICH ISLANDS	(SA-13)	VP8
SOUTH SHETLAND ISLANDS	(SA-13)	VP8
SOUTHWEST AFRICA	(AF-38)	ZS3

SOVIET UNION:		
EUROPEAN RUSSIAN SOCIALIST		
FEDERATED SOVIET REP.	(E-16)	UA1, 3, 4, 6
ASIATIC RUSSIAN S.F.S.R.	(A-18, 19)	UA9, 6
UKRAINE	(E-16)	UB5
WHITE RUSSIAN S.S.R.	(E-16)	UC
AZERBAIJAN	(A-21)	UD6
GEORGIA	(A-21)	UF6
ARMENIA	(A-21)	UG6
TURKOMAN	(A-17)	UH8
UZBEK	(A-17)	UI8
TADZHIK	(A-17)	UJ8
KAZAKH	(A-17)	UL7
KIRGHIZ	(A-17)	UM8
KARELO-FINNISH REP.	(E-16)	UN1
MOLDAVIA	(E-16)	UO5
LITHUANIA	(E-15)	UP
LATVIA	(E-15)	UQ
ESTONIA	(E-15)	UR
SPAIN	(E-14)	EA
SUMATRA	(O-28)	PK4
SWAN ISLAND	(NA-7)	KS4
SWEDEN	(E-14)	SM
SWITZERLAND	(E-14)	HB
SYRIA	(A-20)	AR1

TANGANYIKA	(AF-37)	VQ3
TANGIER ZONE	(AF-33)	EK
TIBET	(A-23)	AC4
TIMOR, Portuguese	(O-28)	CR10
TOGOLAND, French	(AF-35)	FD8
TONGA (Friendly) ISLANDS	(O-32)	VR5
TRANSJORDAN	(A-20)	ZC1
TRINIDAD & TOBAGO	(SA-9)	VP4
TRISTAN da CUNHA & COUGH ISLAND	(AF-38)	ZD9
TUNISIA	(AF-33)	FT4
TURKEY	(A-20)	TA
TURKS & CAICOS ISLANDS	(NA-8)	VP5

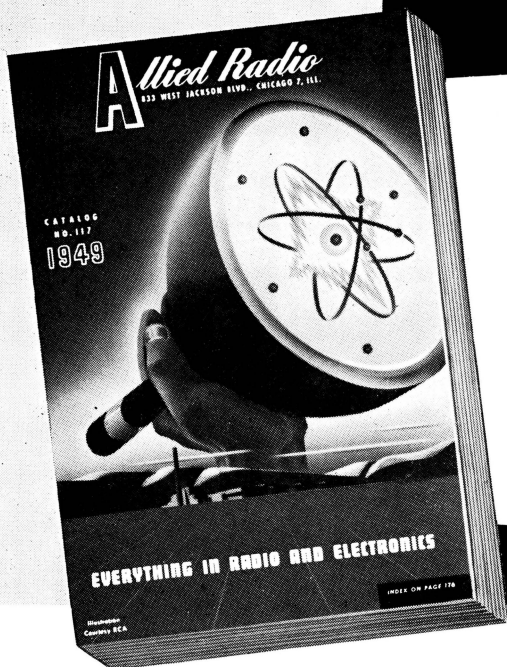
UGANDA	(AF-37)	VQ5
UNION OF SOUTH AFRICA	(AF-38)	ZS
UNITED STATES of AMERICA	(NA-3, 4, 5)	W, K
URUGUAY	(SA-13)	CX

VENEZUELA	(SA-9)	YV
VIRGIN ISLANDS	(NA-8)	KV4

WAKE ISLAND	(O-31)	KW6
WALES	(E-14)	GW
WINDWARD ISLANDS	(NA-8)	VP2

YUGOSLAVIA	(E-15)	YT, YU
------------	--------	--------

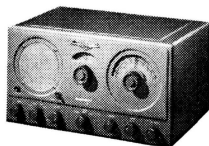
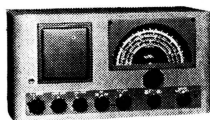
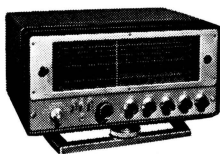
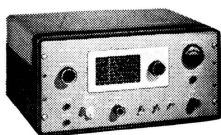
ZANZIBAR	(AF-37)	VQ1
----------	---------	-----



## Your NEW 1949 ALLIED CATALOG is Ready Now!

180 VALUE-PACKED PAGES

YOU'LL FIND ALL THE NEW GEAR IN THE NEW  
ALLIED CATALOG—GET YOUR COPY NOW!



YOU GET EVERY BUYING ADVANTAGE  
WHEN YOU'RE "EQUIPPED BY ALLIED"

- World's Largest Amateur Stocks
- A Real Break on Time Payments
- A Square Deal on Trade-Ins
- Fastest Service on All Orders
- Ham-to-Ham Personal Help

## Send for the Leading Amateur Buying Guide

It's ready for you—the new 1949 ALLIED Catalog—the greatest Buying Guide in Amateur Radio! Just name what you want—we've got it—all the newest and finest in receivers, transmitters, parts and station equipment, at really low, money-saving prices!

You'll save on our new Time Payment Plan—nothing like it for easy terms. You'll get a square deal through our liberal trade-in allowances. And, of course, you have the benefits of our 15-day trial on all receivers, full 90-day guarantee—and all the help in the world from our gang of old-time Hams. Follow the lead of thousands of Amateurs who depend on ALLIED for all their station needs. Write today for your FREE copy of the new 180-page ALLIED Catalog, the world's Leading Amateur Radio Buying Guide.

It Pays to be "Equipped by ALLIED"

Keep This Buying  
Guide Handy . . .

**FREE**



ALLIED RADIO CORP., D. L. Warner, W9IBC  
833 W. Jackson Blvd., Dept. 28-K-8  
Chicago 7, Illinois

- ☐ Send FREE 1949 ALLIED Catalog.  
☐ Send Time Payment details and Order Blank.  
☐ Put my name on mailing list for the ALLIED Ham Bulletins.

Name.....

Address.....

City.....Zone.....State.....

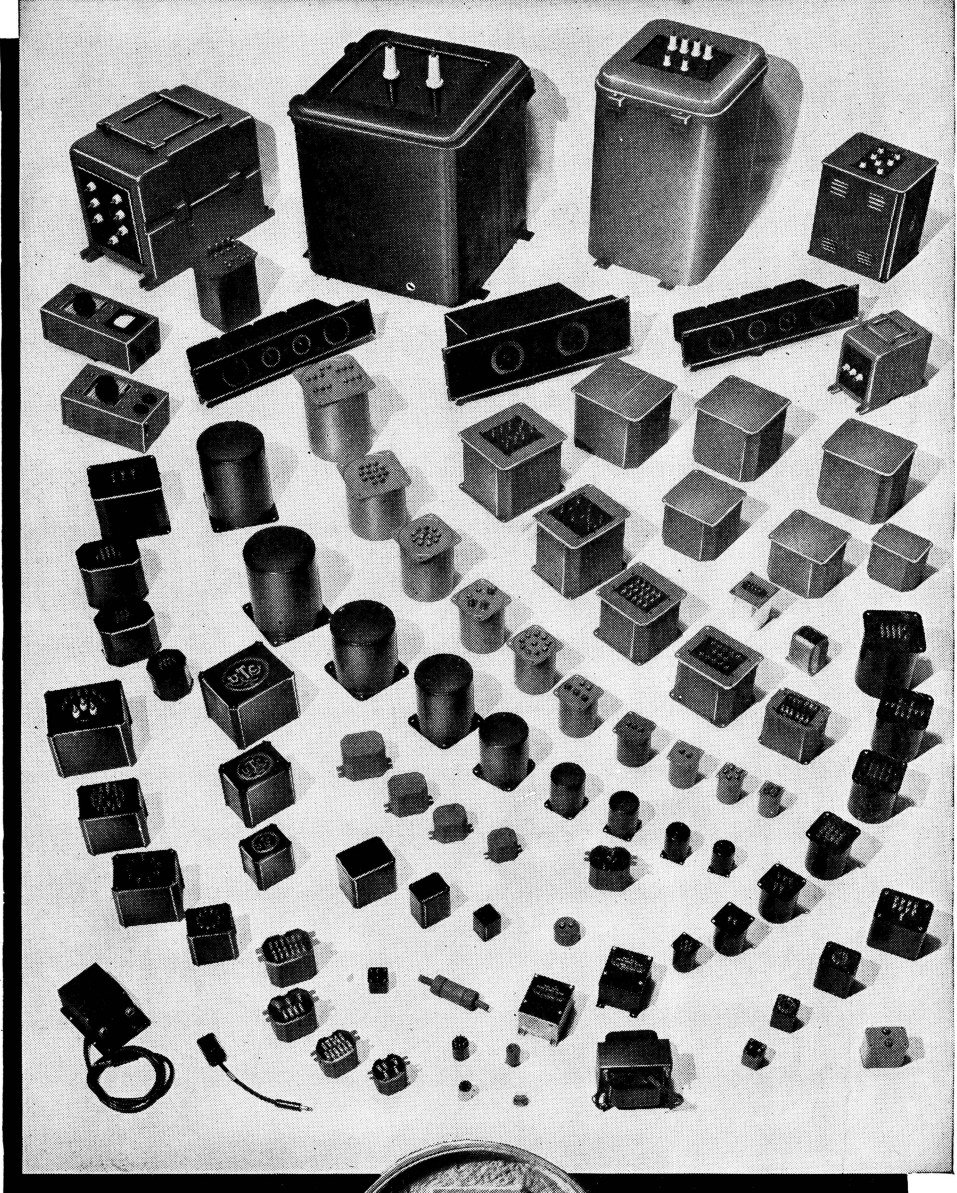
# ALLIED RADIO

*Everything for the Ham*





# TRANSFORMERS FOR EVERY APPLICATION



**LINEAR STANDARD**

**HYPERM ALLOY**

**ULTRA COMPACT**

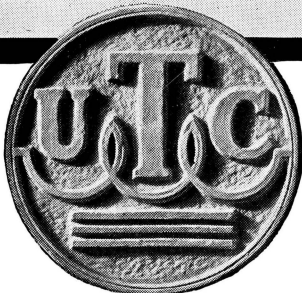
**COMMERCIAL GRADE**

**OUNCER**

**SUB OUNCER**

**SPECIAL SERIES**

**VARIABLE INDUCTOR**



For full listings of U. T. C. items, write for our new catalogue PS-408

Foremost Manufacturers of Transformers for the Amateur

*United Transformer Co.*

150 VARICK STREET

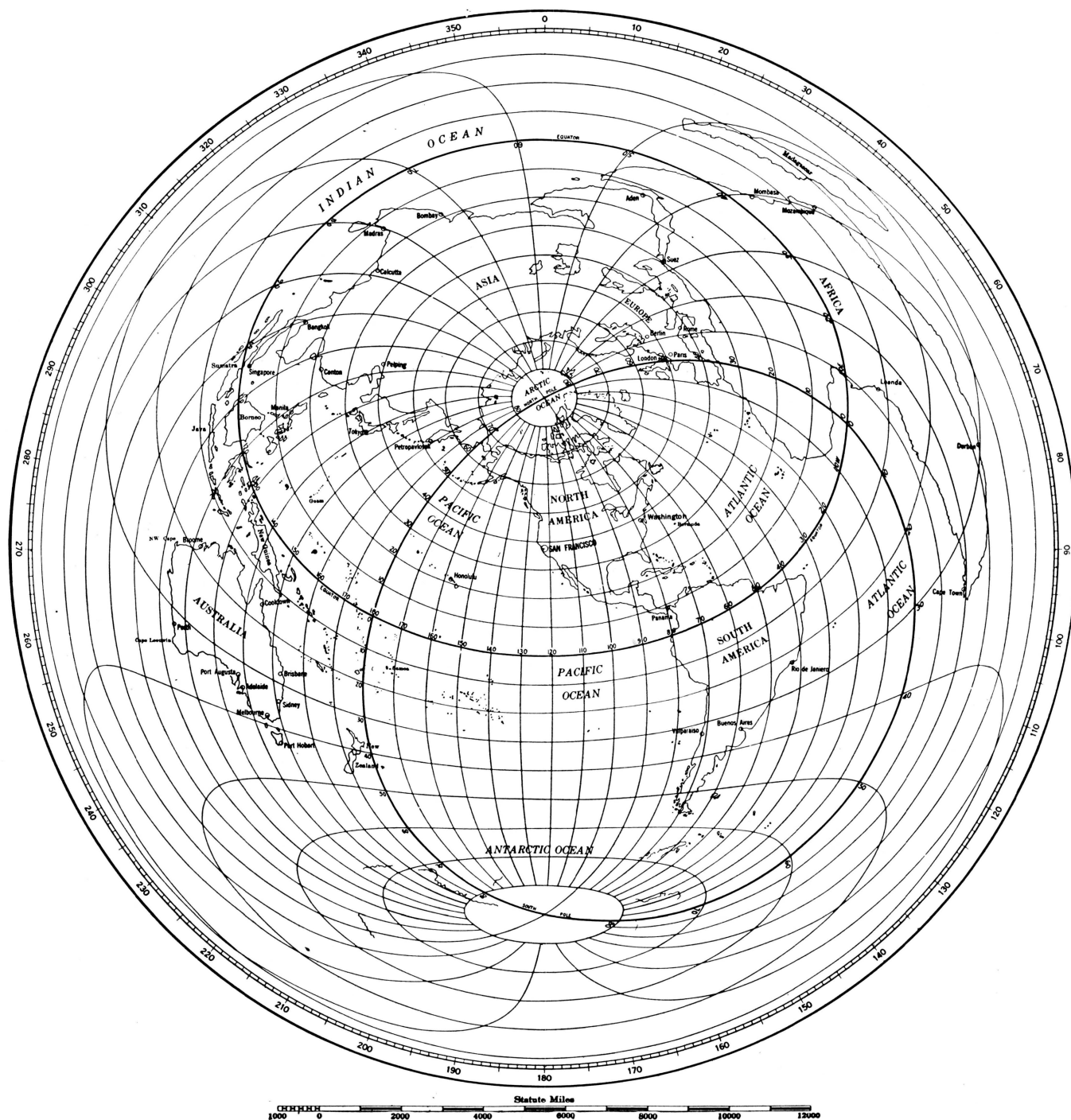
NEW YORK 13, N. Y.

EXPORT DIVISION: 13 EAST 40th STREET, NEW YORK 16, N. Y.,

CABLES: "ARLAB"



# Great Circle Chart of the World Centered on SAN FRANCISCO, CALIFORNIA



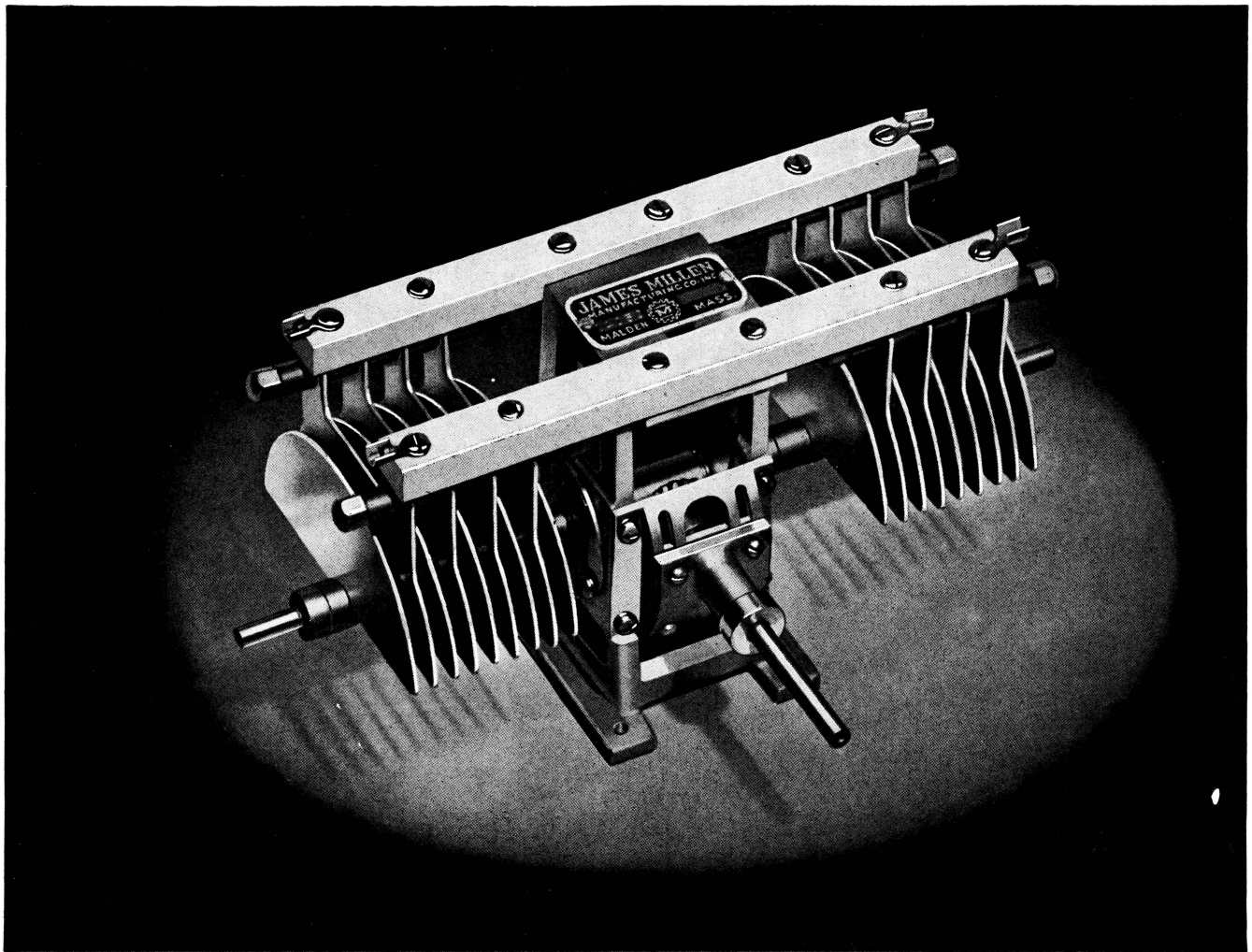
To find the great circle bearing of any point in the world from San Francisco draw a straight line from the center and note the reading in degrees as indicated on the outer scale. The bar scale may be used to determine the approximate distance. This map was prepared by the Hydrographic Office of the U. S. Navy Department.





# GREAT CIRCLE BEARINGS IN THE UNITED STATES

	ATLANTA, GA.	BIRMINGHAM, ALA.	BISMARCK, N. D.	BOSTON, MASS.	BUFFALO, N. Y.	CHARLESTON, W. VA.	CHEYENNE, WYO.	CHICAGO, ILL.	CLEVELAND, OHIO	COLUMBIA, S. C.	DALLAS, TEXAS	DENVER, COLORADO	DES MOINES, IOWA	DETROIT, MICH.	EL PASO, TEXAS	HELENA, MONTANA	HOUSTON, TEXAS	INDIANAPOLIS, IND.	JACKSONVILLE, FLA.	KANSAS CITY, MO.	LITTLE ROCK, ARK.	LOS ANGELES, CALIF.	LOUISVILLE, KY.	MIAMI, FLORIDA	MILWAUKEE, WIS.	MINNEAPOLIS, MINN.	NASHVILLE, TENN.	NEW ORLEANS, LA.	NEW YORK, N. Y.	NORFOLK, VA.	PHILADELPHIA, PA.	PHOENIX, ARIZONA	PITTSBURGH, PA.	ST. LOUIS, MO.	SALT LAKE CITY, UTAH	SAN FRANCISCO, CALIF.	SEATTLE, WASHINGTON	WASHINGTON, D. C.	WILMINGTON, N. C.
ATLANTA, GA.		264	322	47	24	25	301	343	15	86	269	297	320	7	271	310	251	347	145	306	281	281	347	154	345	331	321	234	48	64	48	278	27	318	296	289	308	48	84
BIRMINGHAM, ALA.	82		326	50	31	40	304	356	26	84	268	299	328	17	270	312	246	5	125	314	287	281	10	142	355	338	0	219	52	67	53	278	37	333	298	290	309	53	83
BISMARCK, N. D.	132	137		92	97	115	209	114	105	124	167	205	133	104	198	273	165	119	132	148	150	233	123	135	109	108	131	151	99	111	102	217	106	134	237	249	282	107	119
BOSTON, MASS.	236	241	291		277	247	278	273	267	226	254	275	275	274	262	293	246	263	220	268	253	273	256	207	278	286	249	237	235	219	233	268	258	262	280	280	295	236	217
BUFFALO, N. Y.	208	217	291	92		206	273	264	237	192	241	269	268	261	252	290	231	243	191	258	237	267	231	184	274	286	225	219	118	160	134	261	199	248	276	276	293	159	174
CHARLESTON, W. VA.	208	223	307	61	24		287	309	359	174	251	282	293	345	260	300	238	293	180	279	251	274	270	174	316	311	245	223	66	108	71	269	31	275	286	282	301	80	143
CHEYENNE, WYO.	108	112	26	76	76	91		81	81	103	140	187	83	79	189	319	143	90	113	101	119	241	95	119	76	62	104	128	81	92	83	219	84	98	268	262	303	87	100
CHICAGO, ILL.	161	175	302	82	78	125	272		93	144	221	266	268	80	242	293	210	151	155	245	208	262	157	156	350	308	173	190	91	116	97	254	101	212	274	272	295	106	131
CLEVELAND, OHIO	197	209	297	80	55	179	277	277		176	240	272	275	310	252	293	228	245	180	261	235	268	226	175	290	296	219	214	95	136	105	262	127	250	278	277	296	124	156
COLUMBIA, S. C.	268	267	317	41	10	354	299	329	356		270	295	311	350	271	308	256	326	189	300	279	282	320	174	331	323	297	246	39	53	37	279	7	305	295	290	307	33	85
DALLAS, TEXAS	81	82	349	57	49	61	325	36	50	80		319	15	45	266	325	157	47	97	15	61	280	55	112	32	11	65	115	60	71	61	277	55	40	308	291	315	63	80
DENVER, COLORADO	103	107	22	73	72	87	6	75	77	99	134		74	74	189	325	138	84	109	91	112	246	90	116	70	55	98	124	78	88	80	224	80	91	283	267	308	83	96
DES MOINES, IOWA	134	144	318	80	78	105	271	84	87	123	197	262		81	231	297	187	105	135	197	171	257	116	141	69	5	133	165	87	104	91	247	92	137	273	270	296	97	115
DETROIT, MICH.	188	200	295	86	79	164	273	263	129	168	233	268	268		248	291	222	224	174	254	227	265	208	171	282	292	206	207	100	133	109	258	128	238	275	274	294	124	151
EL PASO, TEXAS	77	78	14	58	54	64	8	50	56	76	79	8	42	53		345	98	57	86	48	71	285	62	97	46	33	68	92	61	69	62	290	59	57	335	298	327	64	75
HELENA, MONTANA	112	116	85	84	88	100	133	97	93	108	134	141	105	92	162		136	101	115	115	122	203	105	119	94	91	111	127	89	98	92	180	94	109	179	224	283	95	104
HOUSTON, TEXAS	64	60	348	50	40	49	329	25	39	67	338	325	6	34	285	327		34	84	3	26	288	40	103	22	5	46	86	52	60	53	289	45	24	314	297	319	5	68
INDIANAPOLIS, IND.	166	185	308	72	58	110	281	332	62	143	234	276	290	41	250	298	220		157	267	226	267	168	158	338	316	188	199	80	107	85	261	80	251	281	277	298	94	127
JACKSONVILLE, FLA.	327	309	324	33	9	1	308	339	0	8	286	304	323	355	282	314	273	340		314	300	288	338	163	341	332	326	271	29	34	28	287	8	323	303	295	312	23	39
KANSAS CITY, MO.	120	129	332	72	67	90	288	60	73	111	196	278	15	66	236	306	184	82	126		157	262	95	134	50	9	113	157	78	93	81	253	79	97	282	275	302	85	105
LITTLE ROCK, ARK.	97	104	335	59	48	65	307	26	48	92	243	300	352	41	260	315	208	43	114	338		276	55	128	21	356	71	158	62	76	64	271	56	22	297	286	309	67	89
LOS ANGELES, CALIF.	81	82	41	62	61	70	52	62	65	79	88	57	60	62	100	19	96	67	87	67	81		70	94	59	52	76	92	65	71	66	95	67	69	35	319	348	68	78
LOUISVILLE, KY.	166	190	313	66	47	87	287	339	43	137	242	282	301	26	256	302	227	348	156	280	239	271		158	342	322	202	205	71	98	75	266	63	278	285	281	301	82	120
MIAMI, FLORIDA	337	326	329	22	3	355	313	342	356	355	302	310	329	353	291	318	290	342	345	321	315	293	341		342	335	334	298	18	16	15	293	1	330	308	299	315	11	13
MILWAUKEE, WIS.	162	175	297	87	88	132	267	170	107	147	218	261	253	99	239	290	207	157	156	235	204	259	160	157		298	172	188	98	121	103	251	111	203	271	270	293	113	135
MINNEAPOLIS, MINN.	145	154	291	91	96	123	248	125	108	135	193	242	184	105	227	283	186	132	144	189	175	248	137	146	114		148	169	99	116	104	237	110	159	259	261	287	111	127
NASHVILLE, TENN.	140	180	320	59	40	61	295	354	36	114	251	290	318	24	261	307	231	8	142	298	254	275	22	150	353	333		205	63	83	65	271	50	313	291	285	305	68	103
NEW ORLEANS, LA.	50	37	337	46	32	38	318	9	28	60	299	313	347	22	283	321	270	17	86	339	339	288	22	114	7	351	23		46	56	47	287	35	359	308	296	315	47	64
NEW YORK, N. Y.	233	240	296	54	303	251	281	281	280	223	255	278	280	286	262	294	244	269	213	271	253	274	259	202	287	293	251	237		205	229	269	269	266	283	282	297	235	208
NORFOLK, VA.	249	253	306	35	342	291	290	303	319	236	264	286	295	318	268	301	253	294	217	285	267	279	284	198	308	307	269	244	25		16	274	322	284	289	286	302	343	208
PHILADELPHIA, PA.	233	240	298	52	317	255	283	285	289	221	255	279	283	294	263	296	246	273	212	273	255	275	263	199	292	296	252	235	49	197		270	279	269	284	282	298	235	203
PHOENIX, ARIZONA	80	83	29	61	59	69	35	58	62	79	89	40	55	59	108	0	100	64	89	62	80	277	70	97	55	45	74	93	64	72	66		64	66	1	300	334	68	79
PITTSBURGH, PA.	210	221	300	72	18	213	280	286	308	188	246	276	281	310	257	295	235	264	189	268	244	271	246	181	296	299	234	222	85	140	96	265		261	281	279	297	123	165
ST. LOUIS, MO.	134	150	320	70	60	90	287	30	63	119	224	280	319	53	248	303	207	68	137	280	204	267	94	143	20	342	130	179	75	95	79	260	74		284	278	301	84	110
SALT LAKE CITY, UTAH	99	101	50	73	74	86	83	79	78	95	118	98	80	76	152	359	123	84	103	91	104	220	88	109	75	67	95	114	78	86	80	181	80	90		254	315	83	92
SAN FRANCISCO, CALIF.	86	86	54	66	67	75	70	70	70	83	96	75	70	68	109	39	101	73	90	77	88	136	77	96	67	62	81	97	69	76	71	114	71	77	66		1	73	81
SEATTLE, WASHINGTON	103	105	87	81	84	94	111	92	89	100	118	116	97	88	136	96	120	95	105	103	109	165	97	109	90	88	102	114	85	92	87	147	89	100	128	181		90	97
WASHINGTON, D. C.	233	240	302	52	342	263	285	293	307	215	256	281	287	308	263	298	245	280	205	277	257	275	268	192	300	302	254	235	53	163	53	270	305	273	285	283	300		189
WILMINGTON, N. C.	267	267	313	32	355	32																																	



*“Designed for Application”*

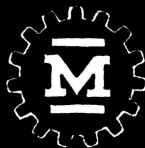
## THE 04000 VARIABLE TRANSMITTING CONDENSER

Another Millen exclusive “Designed for Application” product is the No. 04000 series of variable air transmitting capacitors. Permits more efficient use of newer tubes—more compact and symmetrical circuit arrangements and consequent better neutralization. Center fed rotors for better high frequency current distribution. Constant impedance, heavy current, multiple finger rotor contactor of new design.

Extruded steatite insulation. Terminals in convenient places. Sturdy cast aluminum frame with right angle 1/1 drive. Adjustable drive shaft angle for either vertical or sloping panels. Heavy gauge rounded and polished aluminum rotor and stator plates. Rotor plate radius, 1 1/2". Available in peak voltage ratings of 3000, 6000 and 9000. Ideal for heavy duty industrial electronic heating applications.

**JAMES MILLEN**

MAIN OFFICE



**MFG. CO., INC.**

AND FACTORY

MALDEN, MASSACHUSETTS, U. S. A.



# GREAT CIRCLE BEARINGS FROM THE UNITED STATES TO VARIOUS WORLD WIDE METROPOLITAN AREAS

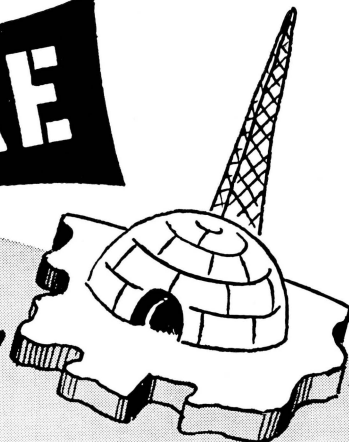
	AMSTERDAM, HOLLAND	ANCHORAGE, ALASKA	ASUNCION, PARAGUAY	AUCKLAND, NEW ZEALAND	BOGOTA, COLOMBIA	BOMBAY, INDIA	BERN, SWITZERLAND	BRUSSELS, BELGIUM	BUENOS AIRES, ARGENTINA	CAIRO, EGYPT	CAPTOWN, SOUTH AFRICA	CARACAS, VENEZUELA	COPENHAGEN, DENMARK	GUATEMALA CITY, GUATEMALA	HAVANA, CUBA	HELSINKI, FINLAND	HONOLULU, T. H.	JOHANNESBURG, SOUTH AFRICA	LA PAZ, BOLIVIA	LIMA, PERU	LONDON, ENGLAND	MADRID, SPAIN	MANILA, PHILIPPINE ISLANDS	MEXICO CITY, MEXICO	MONTEVIDEO, URUGUAY	MONTREAL, CANADA	OSLO, NORWAY	PARIS, FRANCE	PRAGUE, CZECHOSLOVAKIA	QUITO, ECUADOR	RIO DE JANEIRO, BRAZIL	ROME, ITALY	SAN JOSE, COSTA RICA	SANTIAGO, CHILE	SHANGHAI, CHINA	SINGAPORE, MALAYA	STOCKHOLM, SWEDEN	SYDNEY, AUSTRALIA	TOKYO, JAPAN
ATLANTA, GA.	43	325	153	242	160	26	48	45	158	51	114	141	38	198	170	30	280	102	160	170	45	58	329	227	156	32	34	47	42	170	139	51	179	168	336	346	33	254	324
BIRMINGHAM, ALA.	42	325	151	241	155	23	47	44	156	50	113	137	37	191	158	29	279	101	157	167	44	57	327	221	154	36	33	47	42	165	137	50	173	166	334	342	32	253	323
BISMARCK, N. D.	42	315	141	240	143	7	45	43	146	40	97	131	35	162	142	27	261	81	146	154	45	56	317	177	145	84	33	46	39	151	129	46	153	155	325	328	30	256	314
BOSTON, MASS.	51	321	167	253	186	36	56	53	169	60	117	172	45	217	210	36	284	105	177	187	53	68	346	235	168	331	40	56	50	191	153	59	205	181	349	7	39	270	335
BUFFALO, N. Y.	49	320	160	250	172	29	53	51	163	55	112	159	42	203	189	34	279	99	168	178	51	65	338	222	161	54	38	53	47	179	146	56	189	173	342	356	37	266	329
CHARLESTON, W. VA.	46	322	156	246	167	28	50	47	160	53	113	151	40	201	183	32	279	101	164	174	48	61	334	224	159	37	36	50	45	175	143	53	185	170	339	351	35	259	327
CHEYENNE, WYO.	38	322	138	236	135	3	41	40	143	37	100	122	32	151	127	24	263	84	141	148	41	52	312	166	142	69	30	42	36	143	126	42	144	152	322	321	27	250	312
CHICAGO, ILL.	45	320	152	245	158	21	49	47	156	49	108	144	39	186	165	31	274	95	158	167	48	60	328	207	154	66	36	50	44	167	138	51	173	166	335	343	34	260	323
CLEVELAND, OHIO	47	320	157	247	167	27	52	49	161	53	111	153	41	198	182	33	278	99	165	174	50	63	334	219	159	53	37	52	46	175	143	54	184	171	340	352	36	263	327
COLUMBIA, S. C.	44	324	156	243	166	29	49	46	161	53	115	148	39	206	186	31	281	103	164	175	46	59	333	232	159	24	35	48	44	175	142	52	187	171	339	352	34	255	327
DALLAS, TEXAS	39	326	142	237	138	12	43	41	148	44	110	122	34	161	123	26	274	97	146	154	42	53	317	189	147	48	31	43	38	149	130	45	150	157	326	326	29	249	317
DENVER, COLORADO	38	323	137	235	133	2	41	39	143	37	101	120	32	149	124	24	264	85	141	147	41	52	312	164	142	66	29	42	35	142	125	42	142	152	321	320	27	249	312
DES MOINES, IOWA	43	320	146	242	149	15	47	44	151	45	105	135	37	173	149	28	270	90	152	160	46	58	323	194	150	68	34	47	41	158	134	48	162	161	330	335	32	256	319
DETROIT, MICH.	47	320	156	247	166	25	51	49	160	52	110	151	41	195	178	32	277	97	163	173	50	63	333	216	159	62	37	52	46	173	142	54	182	169	339	350	35	263	326
EL PASO, TEXAS	36	329	135	233	125	1	39	37	142	37	108	111	30	136	106	22	270	94	137	142	38	49	308	150	140	52	27	40	34	135	124	41	131	149	319	313	25	245	312
HELENA, MONTANA	36	318	133	233	130	355	39	38	138	31	89	119	30	144	124	22	252	71	136	142	39	49	308	154	137	78	28	40	33	138	121	39	138	147	317	316	25	249	307
HOUSTON, TEXAS	39	328	143	237	137	15	43	41	149	45	113	120	34	162	116	26	277	100	147	154	41	53	317	199	147	41	30	43	38	149	130	46	150	158	327	326	29	247	318
INDIANAPOLIS, IND.	45	321	153	244	160	23	49	47	157	50	110	144	39	190	168	31	276	97	160	169	47	60	329	212	155	54	35	49	43	168	139	52	176	167	336	345	34	259	324
JACKSONVILLE, FLA.	42	326	155	242	163	30	48	44	160	53	117	142	37	209	185	30	283	105	163	173	44	57	331	239	158	20	33	47	42	174	141	51	187	170	338	350	33	251	326
KANSAS CITY, MO.	42	322	145	240	146	14	45	43	151	45	107	132	36	171	143	28	271	93	151	159	44	56	321	193	149	61	33	46	40	156	133	47	159	160	329	333	31	254	319
LITTLE ROCK, ARK.	41	325	146	240	147	17	45	43	152	47	111	130	36	175	141	28	275	98	152	160	43	56	322	203	150	47	32	45	40	157	134	48	161	161	330	334	31	252	320
LOS ANGELES, CALIF.	31	333	127	228	116	347	34	33	135	28	102	104	26	121	100	18	260	84	128	132	34	44	300	126	134	58	24	35	28	124	117	34	119	141	312	303	21	241	306
LOUISVILLE, KY.	44	322	153	244	160	23	49	46	157	50	111	144	39	191	168	30	277	98	160	169	47	60	329	215	156	47	35	49	43	168	139	51	176	167	336	345	33	257	324
MIAMI, FLORIDA	41	328	155	240	163	33	47	43	160	54	118	138	37	223	217	30	285	108	163	175	43	56	331	254	158	13	33	46	42	176	140	50	194	171	339	351	32	247	327
MILWAUKEE, WIS.	45	319	152	245	158	20	50	47	156	49	107	145	39	185	165	31	273	94	158	167	48	61	328	205	154	72	36	50	44	166	138	52	173	165	335	343	34	261	323
MINNEAPOLIS, MINN.	44	317	147	243	152	15	48	46	152	46	103	139	38	175	154	29	270	90	153	161	47	59	324	193	150	81	35	49	42	160	134	49	164	161	331	337	33	259	319
NASHVILLE, TENN.	43	323	151	242	157	23	48	45	156	50	112	140	38	190	162	30	277	99	158	167	46	58	328	216	155	43	34	48	42	166	138	50	174	166	335	343	33	255	324
NEW ORLEANS, LA.	40	327	147	239	146	21	45	42	153	48	114	127	35	182	133	28	279	102	152	161	43	55	322	220	151	35	32	45	40	158	135	48	163	162	331	334	30	249	321
NEW YORK, N. Y.	49	321	164	251	180	34	54	51	167	58	116	166	43	214	204	35	283	104	173	184	51	66	343	233	165	4	39	54	48	187	150	57	199	177	346	3	38	266	333
NORFOLK, VA.	46	323	161	247	176	33	51	48	165	56	116	160	41	213	203	33	283	104	170	181	48	62	339	235	163	12	36	51	46	184	147	55	197	175	344	0	36	260	331
PHILADELPHIA, PA.	48	322	163	249	178	33	53	50	166	57	115	164	42	212	202	34	282	103	172	182	50	65	341	232	164	11	38	53	48	185	149	56	197	176	345	2	37	264	332
PHOENIX, ARIZONA	34	330	131	231	121	354	37	35	138	33	105	108	28	129	104	20	265	89	133	138	36	47	304	137	137	56	26	38	31	130	121	38	126	146	316	308	23	243	309
PITTSBURGH, PA.	47	321	158	247	170	29	52	49	162	54	113	155	41	203	187	33	279	100	167	176	49	63	336	224	160	41	37	52	46	178	145	55	188	172	341	354	36	262	329
ST. LOUIS, MO.	43	322	149	242	153	19	47	45	154	48	109	137	37	181	156	29	274	96	155	164	46	58	325	204	152	55	34	47	42	162	136	49	167	163	332	339	32	256	321
SALT LAKE CITY, UTAH	35	325	132	232	127	355	38	36	139	32	96	114	29	138	116	21	258	79	135	141	38	48	307	149	136	67	27	39	32	135	121	38	134	146	317	313	24	247	308
SAN FRANCISCO, CALIF.	30	333	125	226	115	343	32	31	132	24	95	104	24	121	101	16	252	74	126	130	33	42	298	126	131	62	22	33	26	123	115	32	119	139	310	301	19	240	303
SEATTLE, WASHINGTON	31	321	125	227	120	345	33	32	131	23	79	110	25	131	113	17	240	58	128	133	34	43	300	138	130	75	24	35	27	128	113	32	127	139	309	306	20	243	301
WASHINGTON, D. C.	47	322	161	248	175	32	52	49	164	56	115	160	41	210	198	33	282	103	170	180	49	63	339	23															



# SIT WHERE YOU ARE

*Any Place in the World*

## and let FEDERATED fill your RADIO and ELECTRONIC Needs!



- Hams, experimenters, set-builders all over the world — sit where they are and order their radio needs from Federated. They've been doing this for years because Federated serves equally well across the counter — or across the world!

- Choose any parts you need, out of one of the largest and most complete stocks in America . . . make your order big or small . . . we'll ship at the LOWEST PREVAILING LOCAL PRICES!

- Our Export Department is geared to serve overseas patrons speedily, efficiently! Our trained export personnel know how to handle your orders . . . Our export packing facilities insure fast, safe deliveries!

**Just Opened!**

**NEW FEDERATED Branch**  
1115 HAMILTON STREET  
ALLENTOWN, PENNA.

with completely stocked warehouse and showrooms, featuring all standard brands in Radio & Electronic parts and equipment. If you're around—drop in and say hello!

EXPORT DIVISION

### Federpurch, Ltd

25 W. BROADWAY  
NEW YORK, N. Y.

Cable Address: "FEDERPURCH"

#### FEDERATED Stocks All Standard Brands, Including

Aerovox . . . Amphenol  
ATR . . . Belden  
Bliley . . . Bogen  
Brush . . . Bud  
Burgess . . . Cardwell  
Clarostat . . .  
Cornell-Dubilier  
Allen B. Dumont Labs  
Eitel-McCullough (Eimac)  
General Cement  
Hallicrafters  
Hammarlund  
IRC . . . Jensen  
Littelfuse . . . Masco  
Mc Murdo Silver  
National Co.  
Ohmite . . . Par-Metal  
Precision Apparatus  
Radio City Products  
RCA . . . Sangamo  
Shallcross . . . Shure  
SNC Mfg. Co.  
Soia Electric Co.  
Stancor . . . Triplett  
UTC . . . Webster  
Weston . . . Xcellite



**Federated** INCORPORATED **Purchaser**  
distributors of **RADIO — ELECTRONIC**  
and **SOUND EQUIPMENT**  
80 PARK PLACE, N. Y. 7 Phone: DIgby 9-3050



**Published by the U. S. Coast and Geodetic Survey**

